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EXAMINER

MARTELLO, EDWARD

ART UNIT

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2628

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/542,591 | Applicant(s) COHEN ET AL. | |
| | Examiner EDWARD MARTELLO | Art Unit 2628 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 13-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2628

DETAILED ACTION

Response to Amendment

1. This Office Action is responsive to the amendment received 05 July 2011.
2. Claim 1 is amended, claims 6-9 and 12 are as previously presented, claims 2-5, 10 and 11 are as originally presented and claims 13-32 were previously withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perlin et al. (U. S. Patent 6,285,380 B1, already of record, hereafter '380) and in view of Mochizuki et al. (U. S. Patent 6,414,684 B1, already of record, hereafter '684).

Art Unit: 2628

4. Regarding claim 1 (Currently Amended), Perlin teaches a computer implemented method ('380, col. 19, ln. 57-60) for producing animation of a system having a behavior ('380; Abstract), the method comprising: in a first environment: providing a reactive model of system overall behavior ('380; fig. 1; col. 4, ln. 3-17; col. 17, ln. 21-24; col. 17, ln. 25 through col. 18, ln. 58 for a reactive model example involving reactive animation); and creating animation primitives ('380; col. 4, ln. 55 through col. 5, ln. 12; DOFs, degrees of freedom specifying actions such as head turning, knee bending and smiling) for animating said model ('380; fig. 1, element 20, animation engine; col. 4, ln. 21-48), using a first tool for implementing said animation primitives ('380; col. 4, ln. 21-24) , implementing said reactive model of system overall behavior using a second tool ('380; fig. 1, element 30, behavior engine), said second tool being detached from said first tool ('380; fig. 1; Abstract; col. 16, ln. 1-17, an example were the Behavior Engine {the first tool} is on one LAN of a distributed computing environments and multiple Animation Engines {second tool} are on different processors on the same LAN and even on different LAN's) and in a runtime environment ('380; Abstract; fig. 6; col. 16, ln. 1-21, an example were the Behavior Engine {the first tool} is on one LAN of a distributed computing environments and multiple Animation Engines {second tool} are on different processors on the same LAN and even on different LAN's demonstrating several different runtime environments) , said runtime environment being a different environment from said first environment ('380; Abstract; col. 16, ln. 1-17); but does not explicitly teach detecting events associated with said system; selecting respectively animation primitives according to said model of overall system behavior and said events; and combining together said respective animation primitives representing said detected events; thereby to create an overall animation.

Art Unit: 2628

5. Mochizuki, working in the same field of endeavor, however, teaches detecting events associated with said system ('684; fig. 14-15); selecting respectively animation primitives according to said model of overall system behavior and said events ('684; fig. 5, Processes 61-78); and combining together said respective animation primitives representing said detected events ('684; fig. 5, Processes 61-78); thereby to create an overall animation ('684; Abstract; fig. 5; col. 52, ln. 6 through col. 58, ln. 3) for the benefit of providing an easy to use state based animation modeling environment responsive to easily specified events and state transition descriptors.

6. It would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the state based animation teachings of Mochizuki with the easy to model independent behavioral engine, animation engine and runtime environment teachings of Perlin for the benefit of providing an easy to use or visualize state based animation modeling environment responsive to easily specified events and state transition descriptors.

7. In regard to claim 2 (Original), Mochizuki further teaches wherein said plurality of events comprises a plurality of temporal samples or a plurality of scenarios ('684; fig. 15a- 15d; col. 55, ln. 47 through col. 56, ln. 33).

8. Regarding claim 3 (Original), Perlin and Mochizuki teach the method according to claim 1 and Mochizuki further teaches wherein said plurality of events comprises a plurality of states ('684; fig. 13b; states A through H; col. 47, ln. 65 through col. 48, ln. 43).

Art Unit: 2628

9. In regard to claim 4 (Original), Mochizuki further teaches the method as further comprising: determining at least one transition between said plurality of states ('684; fig. 13b; states A through H; col. 47, ln. 65 through col. 48, ln. 43).
10. Regarding claim 5 (Original), Mochizuki further teaches wherein said at least one transition is determined according to at least one rule ('684; col. 47, ln. 23).
11. In regard to claim 6 (Previously Presented), Perlin and Mochizuki teach the method of claim 3 and Mochizuki further teaches wherein said creating said animation primitives further comprises creating animation primitives of said at least one transition ('684; fig. 13b; states A through H; col. 47, ln. 65 through col. 48, ln. 43).
12. Regarding claim 7 (Previously Presented), Perlin and Mochizuki teach the method of claim 3 and Mochizuki further teaches wherein said state represents an interaction between a plurality of objects ('684; col. 53, ln. 51 through col. 54, ln. 7).
13. In regard to claim 8 (Previously Presented), Perlin and Mochizuki teach the method of claim 3 and Mochizuki further teaches the method as further comprising: interacting between a plurality of objects ('684; col. 53, ln. 51 through col. 54, ln. 7); and altering a state of at least one object according to said interacting ('684; col. 53, ln. 51 through col. 54, ln. 7).

Art Unit: 2628

14. Regarding claim 9 (Previously Presented), Perlin and Mochizuki teach the method of claim 3 and Mochizuki further teaches the method as further comprising: receiving an external input; and altering a state of at least one object according to said external input ('684; col. 47, ln. 40-52).

15. In regard to claim 10 (Original), Mochizuki further teaches, wherein said external input is provided through a user interface ('684; col. 47, ln. 57-64). Perlin also teaches external input being provided through a user interface ('380; fig. 5).

16. Regarding claim 11 (Original), Mochizuki further teaches wherein said user interface is for interacting with a computer game ('684; col. 18, ln. 64 through col. 19, ln. 15; col. 20, ln. 10-17).

17. In regard to claim 12 (Previously Presented), Perlin and Mochizuki teach the method of claim 3 and Mochizuki further teaches wherein said detecting said state is performed by a state engine ('684; fig. 5, process 70 and process 72; col. 6, ln. 33-66), and wherein said creating the animation is performed by an animation engine ('684; fig. 5, eighth through tenth stage; col. 52, ln. 17-63), the method further comprising: receiving a command from said state engine ('684; fig. 5, output of process 68 as input to process 70 or process 72); parsing said command to determining said state of said object ('684; fig. 5, process 70 or process 72); and translating said command to a format for said animation engine for creating the animation ('684; fig. 5 process 71 or process 74 and process 75; col. 56, ln. 34 through col. 57, ln. 54).

18. Claims 13-33 (Withdrawn).

Response to Arguments

19. Applicant's arguments filed 05 July 2011 have been fully considered but they are not persuasive.

20. To set the basis for the Examiner's reply to the Applicant's arguments, a few definitions and equivalences between the instant application and the applied art are set forth.

21. At issue in the Applicant's remarks is the concept of animation primitives. Paragraph [0016] of the instant application provides the following; "States may preferably be logically mapped to **animation primitives, simple actions carried out by objects which may preferably not be broken down into simpler actions**, and which therefore preferably represent the **simplest or most basic actions or portions of the animation**. The animation is then created by translating each such state into a visual depiction of the action. It should be noted that an action may optionally be descriptive of the object."

22. The Examiner provided Perlin's equivalent to the above in the rejection of claim 1; "creating animation primitives ('380; col. 4, ln. 55 through col. 5, ln. 12; DOFs, degrees of freedom specifying actions such as head turning, knee bending and smiling)"

Art Unit: 2628

23. Expanding the smiling DOF or primitive of Perlin as cited above, "...For each deformation target, the system detects which vertices have been moved, and builds a data structure containing the x,y,z displacement for each such vertex. For example, if the author provides a smiling face as a deformation target, he can then **declare SMILE to be a DOF**. The author can then specify various values for SMILE between 0 (no smile) and 1 (full smile). The system handles the necessary interpolation between mesh vertices. In the particular case of smiling, the author can also specify negative values for SMILE, to make the face frown."

24. The Examiner contends that this is an example of a primitive that fits the definition of a primitive as provided in the instant application as the smile is a simple action carried out by the person or character object that is translated into a visual depiction of the action and is descriptive of the object and in addition has additional parameters to set the degree or amount of the basic animation allowing easy and intuitive reuse of the construct in the spirit and form of a UML type language as preferred in the instant application.

25. The Applicant states "Perlin indeed teaches two tools, one is an animation engine and the other is a behavior engine." Thus the Applicant concurs that the first half of claim 1 down to the phrase, "said second tool being detached form said first tool."

26. The Examiner shows that the two tools as set forth in the first part of the claim are running under the same environment, with Perlin, col. 14, ln. 44-48, where in fig. 4, the two detached tools are described as running on a single processor, on multiple processors or even

Art Unit: 2628

across a network. The single processor configuration is an example of the two tools as shown in figure 4 running in the same environment.

27. The Examiner could take this further by describing “an environment” as being an operating system upon which all of the modules or methods or teachings of Perlin are running. In this case, all of the tools and methods and the like taught by Perlin are described in an exemplary embodiment of a system in accordance with the invention as implemented as a set of distributed programs in UNIX, connected by TCP/IP socket connections, multicast protocols and UNIX pipes. The participating processes can be running on any one or more UNIX machines (‘380; col. 15, ln. 27-33). This is another example of the two tools running together in a single UNIX environment which counters the argument of the Applicant that Perlin’s tools cannot run under a single environment.

28. The Applicant argues that the Behavior model of Perlin could not run on the second environment as required by the second half of claim 1. The Examiner respectfully disagrees as the arguments provided above show that the modules of Perlin can be run on multiple physically disconnected but networked machines and provides an example of a second environment (Perlin fig. 6).

29. The Applicant argues that the present invention teaches a behavior engine that implements behavior as a non-linear series of paths between different behavior states. Perlin by

Art Unit: 2628

contrast teaches a behavior engine that "enables authors to create sophisticated rules governing how actors communicate, change and make decisions" (Perlin abstract).

30. The Examiner respectfully disagrees. As presented in the instant application, a modeling tool such as UML is used to allow the authors of the behavioral animation to perform the programming in/using structured methods. And that is just what the Applicant said that Perlin is doing --- providing a tool that allows authors to carry out programming. The primitives are the DOFs as described above.

31. The Applicant argues

that Mochizuki is cited as teaching something that could use the tools of Perlin to carry out the features of the second environment of the claim. However Perlin does not provide the necessary input. It provides no animation primitives and no actually implemented behavior model, so that the stages in Fig. 5 of Mochizuki would have no data to run on. Mochizuki does not mention any reactive system abilities. All that Mochizuki does when detecting an event is that he makes a judgment about the time (process 69) and then considers whether to enter process 70 and alter the time line or process 72 and insert a connecting motion.

That is to say, Mochizuki does not teach any creation of animation "on the fly". Rather they dissociate animation from computation, but the animation still has to be pre-specified in some manner. So the overall animation in Mochizuki is known, all that is changed is the time scale and connecting motion - see seventh and eighth stages.

By contrast, in reactive animation as presently claimed, it is actually impossible to know what the animation might look like, as different objects may initialize different animation sequences, whose combined effects will generate animated objects of higher complexity.

Mochizuki fails to teach a behavior model (a reactive system) which specifies the behavior of the whole system within a single overall flow. A reactive system visualizes the concept of the system by using diagrammatic tools that do not only visually portray behavior but are also machine legible and therefore executable. Such a reactive system can be implemented, for example by using Unified Modeling Language (UML) which is a language used in the art for specifying large complex systems.

Art Unit: 2628

It is stressed here that Mochizuki does not teach animation primitives in stages 71 and 74 but rather teaches using basic motion data of a full animation to set timings. There is no animation primitive.

32. The Examiner replies that the Applicant has tried to use or show the Mochizuki reference as teaching the animation primitives and reaction interrelationships of the objects being modeled as the basis for these features as they have tried to make the case the Perlin does not teach these features.

33. The Examiner respectfully replies that Perlin is the basis of the teachings of the animation primitives as argued above and the basis of the interactive behavior modeling of the overall simulation as also argued above.

34. What Mochizuki was brought in to teach, is the state based teachings of modeling actions and transitions between states through state and state transition diagrams.

35. Perlin teaches scripting the states and actions of the author created scenarios through a scripting language which is actually using state definitions and event sampling and response rules to monitor and decide when and what states to travel to, or not respond in some cases, given the inputs from unscripted actions of the human and/or other character participants involved in any particular simulation or session. The acts of compiling state diagrams and transition conditions are buried within Perlin's scripting teachings; Mochizuki is added to make explicit what is happening within Perlin.

Art Unit: 2628

36. The reason or motivation to combine the two references is the motivation to provide an easy to visualize state based action modeling environment responsive to easily visualized events and state transition descriptors (sort of a block diagram design approach or environment to generate the action/reaction scripts of Perlin).

37. Claim 1 is rejected is rejected as shown in the claim rejection section above and is argued as shown immediately above.

38. Dependent claims 2-12 are rejected as being dependent upon a rejected base claim and for the additional features which they add as shown in the claim rejection section above.

39. Claims 13-33 were previously withdrawn.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2628

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Martello whose telephone number is (571) 270-1883. The examiner can normally be reached on M-F 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on (571) 272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edward Martello/
Examiner, Art Unit 2628

/XIAO M. WU/
Supervisory Patent Examiner, Art Unit 2628